FIG. 1

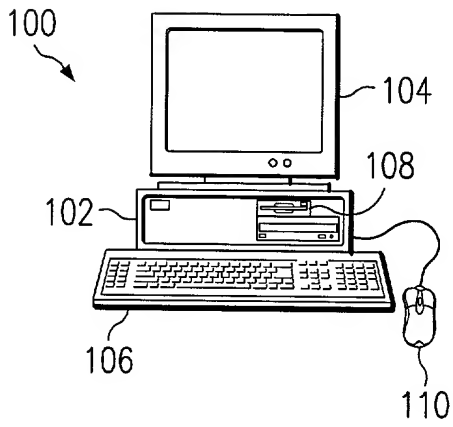

100
104
108
102
106
110

FIG. 2

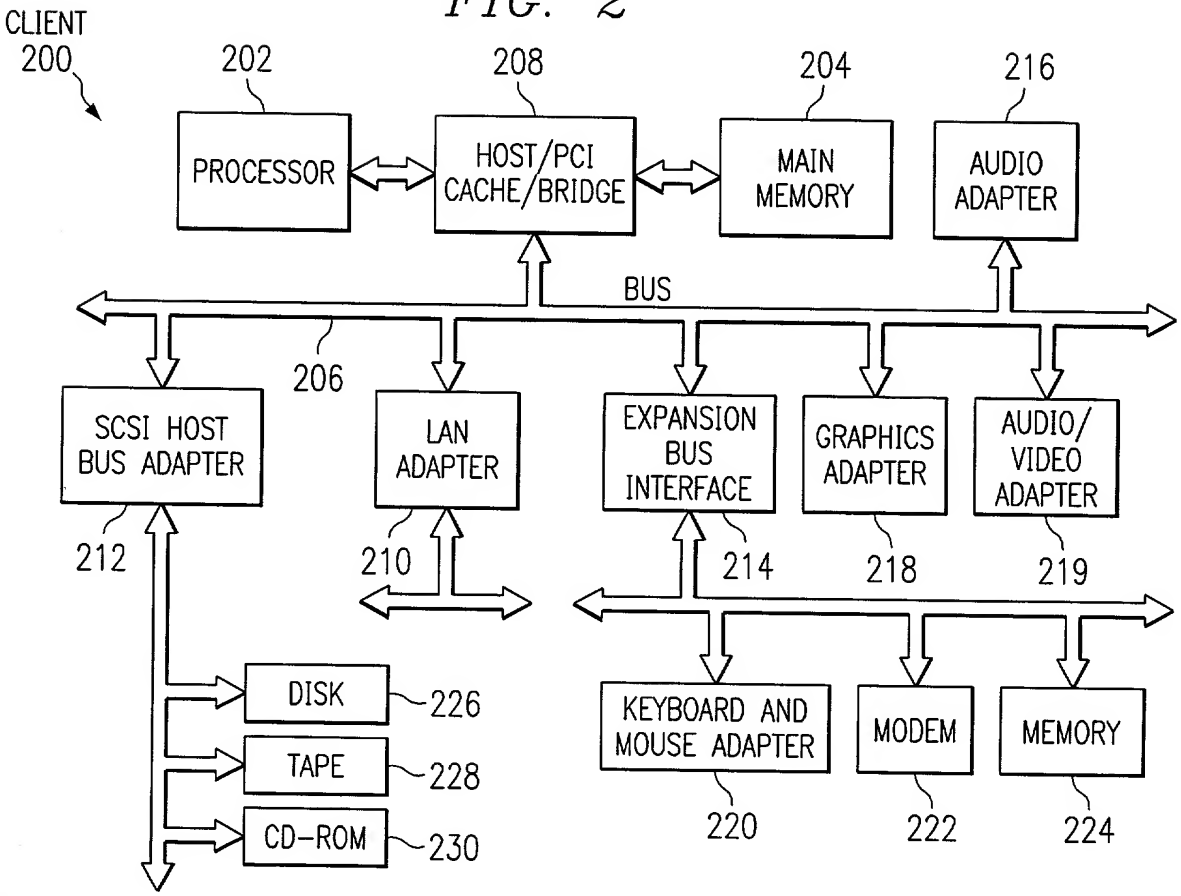

CLIENT
200
202
208
204
216
PROCESSOR
HOST/PCI
CACHE/BRIDGE
MAIN
MEMORY
AUDIO
ADAPTER
BUS
206
SCSI HOST
BUS ADAPTER
LAN
ADAPTER
EXPANSION
BUS
INTERFACE
GRAPHICS
ADAPTER
AUDIO/
VIDEO
ADAPTER
212
210
214
218
219
DISK
226
TAPE
228
CD-ROM
230
KEYBOARD AND
MOUSE ADAPTER
MODEM
MEMORY
220
222
224

FIG. 3

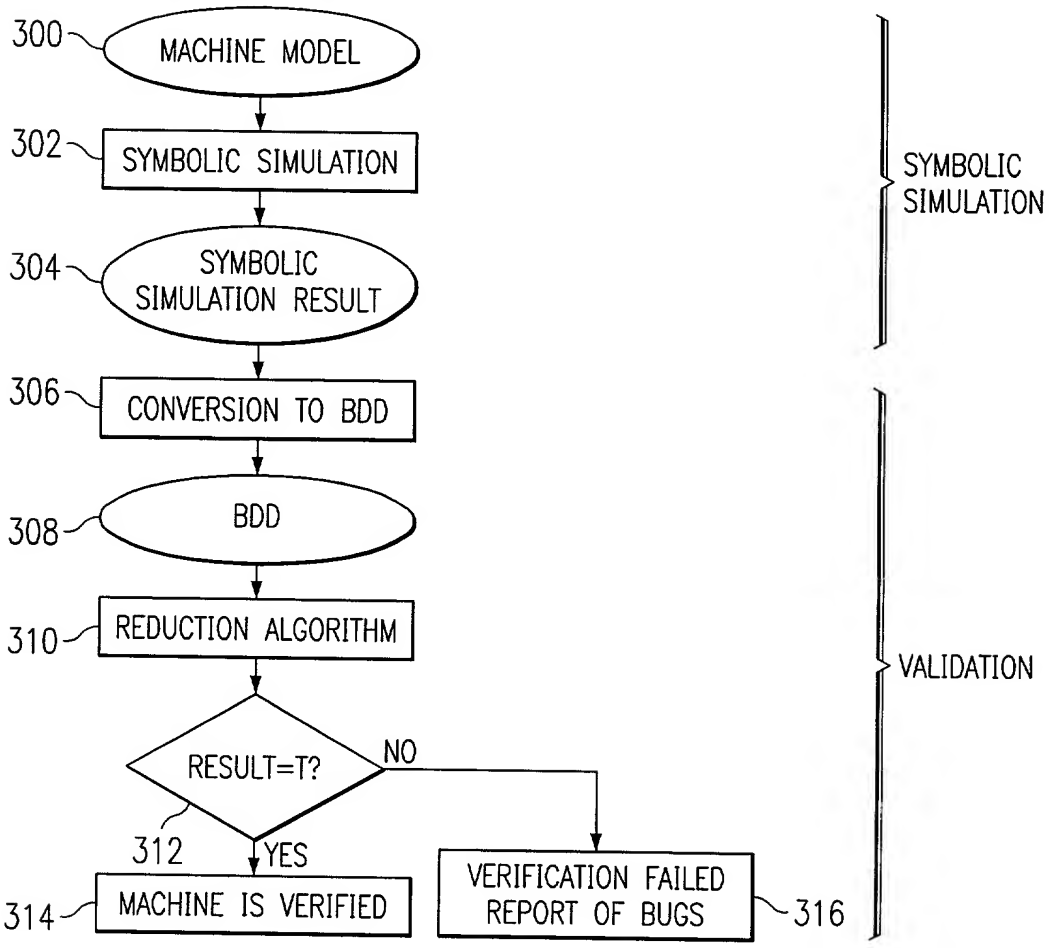

300
MACHINE MODEL
302
SYMBOLIC SIMULATION
304
SYMBOLIC SIMULATION RESULT
306
CONVERSION TO BDD
308
BDD
310
REDUCTION ALGORITHM
RESULT=T?
NO
312
YES
314
MACHINE IS VERIFIED
VERIFICATION FAILED REPORT OF BUGS
316
SYMBOLIC SIMULATION
VALIDATION

FIG. 4

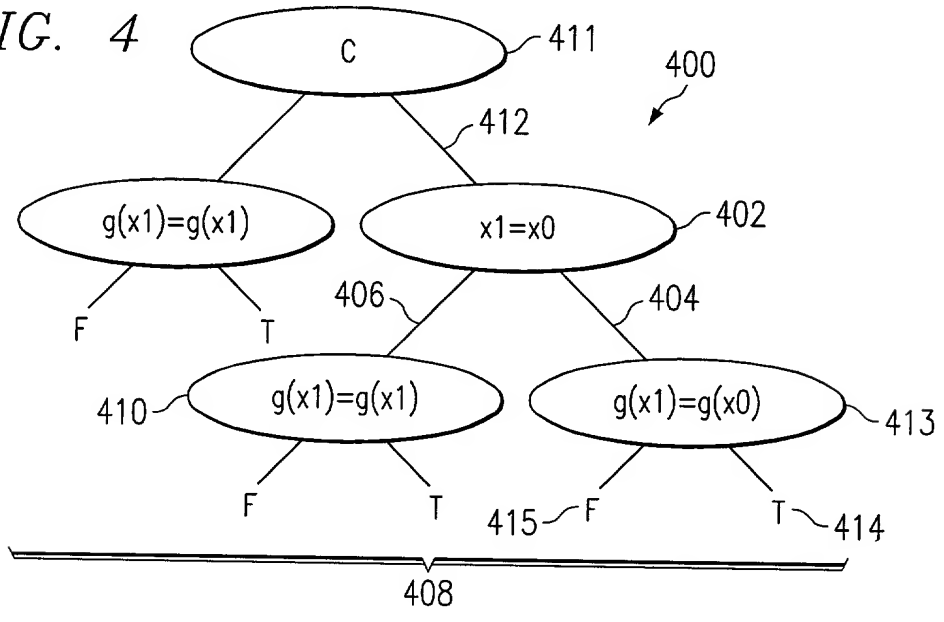

C
411
400
412
g(x1)=g(x1)
x1=x0
402
F
T
406
404
410
g(x1)=g(x1)
g(x1)=g(x0)
413
F
T
415
F
T
414
408

FIG. 5

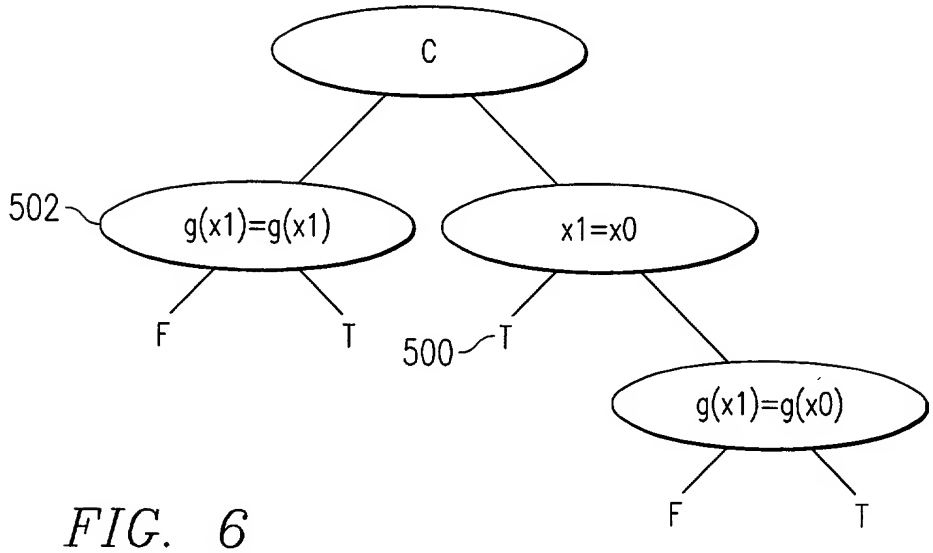


FIG. 6

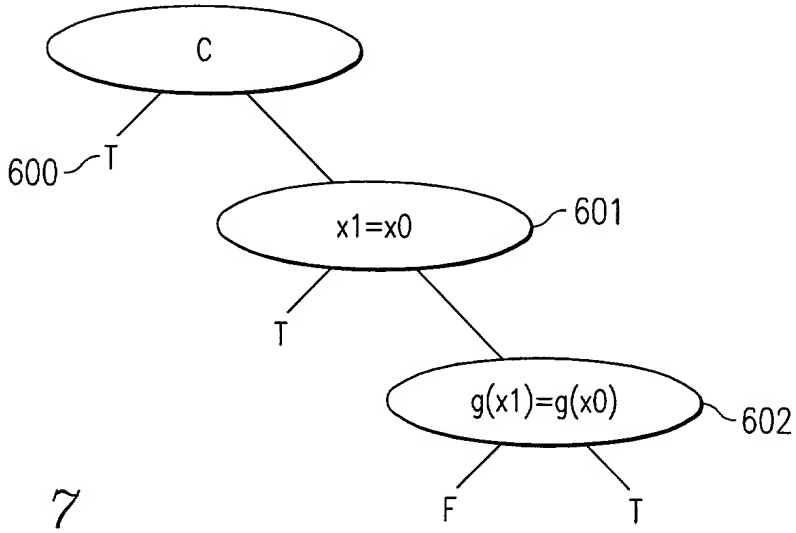
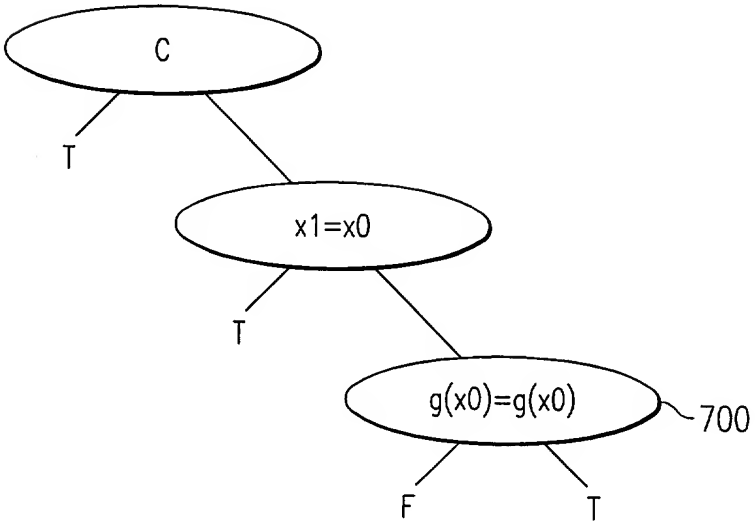


FIG. 7



Docket: 08/29/08

FIG. 8

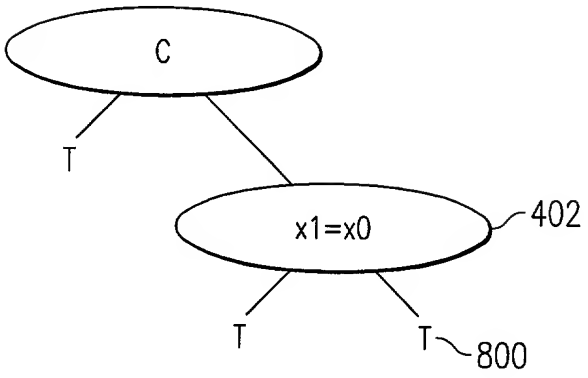


FIG. 9

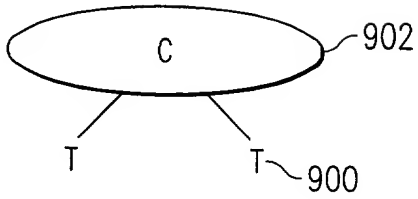


FIG. 10

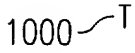
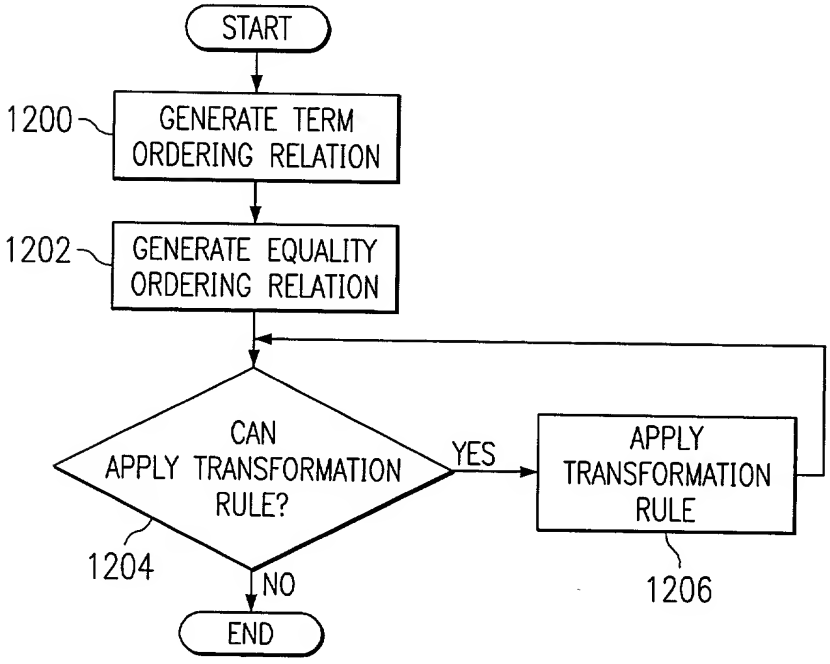


FIG. 12



1100

```
1101  simplify (X,Y) :- sim (X,Z), !, simplify (Z,Y).
      simplify (X,X).

      sim(ite(S=S, H, _), H).
      sim(ite(S=T, H, K), ite(T=S,H,K)) :-gt(T,S).
      sim(ite(_,H,H), H).
      sim(ite(E, ite(E,H,_), L), ite(E,H,L)).
      sim(ite(E, H, ite(E,_,L)), ite(E,H,L)).
1102  sim(ite(E1, ite(E2,H,K), L), ite(E2, ite(E1,H,L), ite(E1,K,L))) :-
            gts(E1,E2).
      sim(ite(E1, H, ite(E2,K,L)), ite(E2, ite(E1,H,K), ite(E1,H,L))) :-
            gts(E1,E2).
      sim(ite(S=T, H, K), ite(S=T, L, K)) :-
            gt(S,T),repl(S,T,H,L), H \==L.                    1104
1108  sim(ite(A,B,C), ite(A,X,C)) :- sim(B,X).
      sim(ite(A,B,C), ite(A,B,X)) :- sim(C,X).

      repl(S,T,S,T) :- !.
      repl(S,T,P,Q)  :-
            P = . . [X|Args],
1106        maprepl(S, T, Args, Newargs),
            Q = . . [X|Newargs].

      maprepl(_,_,[],[]).
      maprepl(S, T, [X|A], [Y|B]) :- repl(S,T,X,Y), maprepl (S,T,A,B).

1110  gts(A=_, C=D) :- gt(A,C), gt(A,D).
      gts(_=B, C=D) :- gt(B,C), gt(B,D).

      depth(P,X) :- atom(P), !, X is 0.
      depth(P,X) :- P =. . [_|Args], max_depth(Args,Y), X is Y+1.

      max_depth([],0).
      max_depth([A|L],X) :- depth(A,Y), max_depth(L,Z), X is max(Y,Z).
1112
      gt(P,Q) :- depth(P,DP), depth(Q,DQ), DP>DQ, !.
      gt(P,Q) :- P =. . [F|_], Q =. . [G|_], F \== G, gtlex(F,G), !.
      gt(P,Q) :- P=. . [F|Args1], Q =. . [F|Args2], gtlist(Args1,Args2).

      gtlist([A1|L1],[A2|L2]) :- A1\==A2, !, gt(A1,A2).
      gtlist([_|L1],[_|L2]) :- gtlist(L1,L2).

1114  gtlex(g,f).
      gtlex(x1,x0).
```

FIG. 11

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